



**PATENT APPLICATION**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Harufumi MUTO et al.

Group Art Unit: 3747

Application No.: 10/568,947

Examiner: H. HUYNH

Filed: February 22, 2006

Docket No.: 127102

For: INTAKE AIR AMOUNT CONTROL APPARATUS AND INTAKE AIR AMOUNT  
CONTROL METHOD OF INTERNAL COMBUSTION ENGINE

**REQUEST FOR RECONSIDERATION**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In reply to the April 12, 2007 Office Action, and the July 5, 2007 personal interview,  
reconsideration of the rejection is respectfully requested in light of the following remarks.

Claims 1-14 are pending in this application.

Applicants appreciate the courtesies shown to Applicants' representative by Examiner  
Huynh in the July 5, 2007 personal interview. Applicants' separate record of the substance of  
the interview is incorporated into the following remarks.

In the Office Action, claims 1-14 are rejected under 35 U.S.C. §102(b) over Japanese  
Patent Publication No. JP2002-303177 to Matsumoto et al. This rejection is respectfully  
traversed.

The subject matter of independent claims 1 and 8 control an intake air amount in an  
internal combustion engine provided with a throttle valve 12 and an intake air amount  
changing means linked with the throttle valve (such as, for example, a valve lift changer 14 or

operating timing shifter 15 shown in Applicants' Fig. 1). In particular, the intake air control apparatus of claim 1 is provided with model equations for expressing air passing through the engine intake system, as well as "means finding a target intake air amount based on an accelerator opening degree and engine speed," "means for determining a target setting for said intake air amount changing means based on at least said target intake air amount," and "means for finding a target throttle opening degree...for realizing said target intake air amount, from said target intake air amount and said target setting based on said model equations" (emphasis added).

Independent claim 8 is a similar method claim that includes steps of "finding a target intake air amount based on an accelerator opening degree and engine speed," "determining a target setting for said intake air amount changing means based on at least said target intake air amount," and "finding a target throttle opening degree...for realizing said target intake air amount, from said target intake air amount and said target setting based on model equations creating a model of an engine intake system and expressing air passing through said engine" (emphasis added).

As discussed during the interview, in both independent claims, target settings for both the throttle valve 12 and intake air amount changing means (such as variable valve lift changer 14 or operation timing shifter 15) are based on at least the target intake air amount.

The Office Action fails to make a *prima facie* case of anticipation with respect to any of claims 1-14, and particularly with respect to dependent claims 2-7 and 9-14, because the Office Action fails to identify where any of the claimed subject matter is found in Matsumoto. In particular, although the Matsumoto engine appears to have a variable valve timing design 30 and a throttle valve 14, the Office Action fails to identify any structure corresponding to control of both the throttle valve and intake air amount changing means linked with said throttle valve based on a target intake air amount. Moreover, the Office Action fails to

identify any passage in Matsumoto teaching that any of the computations are based on a "model of an engine intake system and expressing air passing through said engine intake system." Additionally, the Office Action fails to identify any structure that finds a target throttle opening degree "from said target intake air amount and said target setting based on said model equations." Instead, throttle opening in Matsumoto appears to be based on solely a target intake pressure and a target cylinder filled air amount (Abstract).

Thus, as agreed upon during the personal interview, Matsumoto fails to teach or suggest a means for determining a target setting for said intake air amount changing means based on at least said target intake air amount, and a means for finding a target throttle opening degree, which is a throttle opening degree for realizing said target intake air amount, from said target intake air amount and said target setting based on said model equations.

Because Matsumoto fails to teach or suggest each and every feature of independent claims 1 or 8, these claims and claims dependent therefrom are not anticipated by Matsumoto.

Moreover, with respect to dependent claims 3-6 and 10-13, the Office Action fails to identify any structure in Matsumoto that provides first and second equations in which the first equation "expresses a relationship between the intake pipe internal pressure... and a throttle valve passage air flow rate" and the second equation "expresses a relationship between the intake pipe internal pressure... and a cylinder intake air flow rate and determined with at least a setting of said intake air amount changing means and an engine speed." Accordingly, dependent claims 3-6 and 10-13 are allowable for their dependence on an allowable base claims and for the additional features recited therein. Withdrawal of the rejection is respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-14 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Date: July 11, 2007

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